

Learning from past missions for today's case studies.

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Session topic: Recent Launches

As interest in small spacecraft and its community continue to grow, the extensive selection of subsystem parts and service providers can present as many opportunities as unique challenges for mission design and implementation. These challenges often include inadequate trade studies, missing lessons learned, and unknown solutions to common pitfalls. Trade studies frequently fall short if products and services ultimately do not meet customer expectations, especially if the actual performance of a particular service or technology is not shared with others seeking similar products or services. It is difficult to quantify the viability and robustness of desired products and services, truly understand what solutions exist, and account for unique failures from previous SmallSat missions when experiences are not shared and captured. This noted, one reason for the lack of information as input for trade studies is that it is problematic to capture and disseminate the relevant lessons learned, experienced anomalies, and programmatic issues in both the laboratory and on-orbit setting, as these types of information can be extremely sensitive and are specific to each unique mission. Often, they are not made publicly available. The adoption and use of existing tools and databases, as well as contributions toward and sharing of information available in literature can help distribute useful information for future SmallSat missions to help avoid these common pitfalls.

This paper will provide the required framework for current and future SmallSat mission implementation by providing best practices and identifying helpful resources to assist with subsystem parts and services as part of trade study selections.